that the Social Security Board was studying the possibility of adding a national health insurance project as a part of its program. Comprehensive health insurance, of course, would be borne by the taxpayers and it is estimated as likely to cost 5 per cent of pay rolls. The Social Security Board has authority to make research studies on "related subjects" and health insurance is held to be one of these.

ROCKEFELLER AND THE PUBLIC HEALTH

Many public health workers of California have been given scholarships from the Rockefeller bounty and through the educational advantages made available by this source the health of Californians, in general, has been enhanced greatly. It would seem most fitting, therefore, to reproduce the following appreciation of John D. Rockefeller, which appeared in the London *Lancet* of May 29, 1937:

"With the death of John D. Rockefeller at the great age of nearly ninety-eight years an almost legendary figure has stepped quietly, almost imperceptibly, from the present into the past. The day will come when his life and endeavor will be written at full length, for almost alone among the world's rich men he has found a lasting place in the human imagination. There was something heroic in his mould, something dramatic in the denouement of his life which made him the very sign and epitome of his times and the last and almost tragic representative man of an age of individualism which has perhaps passed forever. The plot of his life is briefly told. Unbounded and self-sufficing ambition, machine-like industry and efficiency, riches amassed unemotionally and perhaps ruthlessly until they surpassed the count of man. In the plenitude of power and wealth came the conviction born of a deep puritanism that what had been wrenched without mercy from the world must be returned to it with interest; the machinery of his great wealth was put in reverse and the redistribution was carried out with the same genius and unrelenting thorougness which went to its amassing.

"To medicine John D. Rockefeller has been the greatest monetary benefactor of all time, not only as measured by the vast sums he expended, but also by the skill and forethought with which the money was invested. He was fortunate in his choice of medical advisers, or perhaps it would be fairer to say he was incomparably skillful in choosing them. As his great wealth had been acquired with a vision which went far beyond the limits of his own country, so it was spent without consideration for national boundaries. In this country alone the Rockefeller benefactions have been of unexampled magnitude and, as we look back on them, we are glad to think that it would be hard to suggest how they could have been made to better advantage. Thus the schools of London, Oxford, Cambridge, Edinburgh, and Bristol were given princely sums for important and overdue schemes of expansion. In London outstanding gifts were those to University College and its hospital, to the London School of Hygiene and Tropical Medicine, and toward the building of the new university premises in Bloomsbury. Many other universities and medical schools throughout both the British Empire and the world have likewise benefited according to their needs and deserts. In the United States itself there can be few medical schools or research institutions which are not indebted to the Foundation which for some ten years or so after the war seemed never to fail to meet every really deserving demand. The central monument of the Foundation is, of course, the Rockefeller Institute in New York. In this institute medical research, in its widest sense, was given a home and endowment on a scale paralleled by no other medical research institution in existence. The finest medical brains in the world were there attracted by the facilities for research. In this institute were conducted the work of Flexner on meningitis, of Cecil, Dochez, and Avery on pneumonia, the brilliant researches of Peyton Rous on transmissible tumors, Noguchi's spectacular, if sometimes misleading, investigations on syphilis, yellow fever, and bartonella infection. Here, too, Karl Landsteiner built up the great school of immunological chemistry the fruit of which is only beginning to be fully borne; while even wider in interest and passing far beyond the confines of medicine was the work of Armand Carrel on tissue culture, and of Jacques Loeb on the dynamics of living matter. Not the least inspired of the views of the Rockefeller Foundation was the realization that there are no real boundaries to scientific knowledge and that the problem of medical education and research is not so much one of medical education as such, but of education in general. Thus, as the Foundation grew in experience and wisdom it became less purely medical in its activities, and in England we profited by this outlook in the benefactions to libraries and to such institutions as the London School of Economics. Relatively few of the great sums distributed by the Foundation took the form of permanent endowments. It was considered sufficient to plant the sapling and leave it to others to make the salutary effort by tending it and bringing it to fruition; but the Foundation never went by hard-and-fast rules, and where endowment was necessary and advisable it was arranged in the most elastic way possible. No institution and no individual who benefited from the Foundation ever felt the dead hand of formal charity. It is this tact and true understanding of the very spirit of learning and research which has earned the gratitude of the medical profession and which has been a model to countless benefactors who have followed the example of the great American philanthropist. To the medical profession J. D. Rockefeller will always be something more than the weazened and eccentric old gentleman who gave new dimes to passing children—something more, too, than the richest man in the world, whose name became as proverbial as Croesus. For the medical world, perhaps alone, is in the position to realize the grandeur of the drama of restitution which was played out in his life. In the midst of the murkiness and cruelty of the arena of nineteenth century commercialism, where he stood a peerless victor, he saw a vision and of that vision was born an ideal."

INFANTILE PARALYSIS—ZINC SULPHATE NASAL SPRAY

At Toronto, Ontario, on September 2, it was announced that five thousand Ontario children under fourteen were being treated this week, in a vast clinical test, with the Peet zinc sulphate nasal spray—the most hopeful preventive measure yet discovered in the war against infantile paralysis. Fighting an outbreak which has made increasing inroads since June, and which is not expected to reach its peak until the third week in September, Ontario hospitals and clinics are giving this preventive treatment free to children—at the rate of one thousand a day.

Never tested conclusively since its recent development by Dr. Max Minor Peet of the University of Michigan, the zinc sulphate spray's value as a preventive measure will be known soon as a result of the Ontario experiment.

"Ontario's experiment with five thousand cases will be of the utmost importance to medical science," Dr. Thomas M. Rivers, Director of the Rockefeller Institute Hospital of New York, told a Toronto newspaper over long-distance telephone.

"With animals the Peet spray works beautifully, but with children I can give no real opinion. There have been tests on individual cases, but for scientific purposes we need the results of hundreds of cases to have anything conclusive. We shall all be watching Ontario's results with the greatest interest."

Doctor Rivers said a picric acid spray, which has shown itself much inferior to the Peet spray in tests with animals, had been used last summer on thousands of children in Alabama, and showed some result, despite administration, in most cases, by insufficiently instructed physicians.

"The spray is certainly the most hopeful treatment so far," he declared.

Drs. Paul and John Rauch, staff members of the Hagmeier Clinic at Preston Springs, one of the Ontario institutions offering the free nasal spray treatment to children, declare that the spray, while not yet definitely proved a success in prevention of infantile paralysis, is "the only thing yet found of value as a preventive, and should be made a public health measure." Both have made a special study of the spray at Chicago.

Eight hundred children have been treated in five days at Hagmeier alone, Dr. Paul Hauch reports. The method of administering the spray, although requiring special training and instruction, is a simple one. Older children are treated with a nasal speculum and an atomizer. Younger

children, somewhat more difficult to handle, are treated with an ordinary atomizer and then held upside down for a moment to allow the spray to penetrate to a sufficient depth into the nostrils.

Official sponsorship of the treatment was urged by Doctor Rauch. "I think it should be taken up as a voluntary measure," he said. "When an epidemic comes along, medical health officers are usually more aware of it than general practitioners, can give first-hand information and have the facilities. From the standpoint of statistics, it would be valuable, too, as the more we can centralize the treatment the better."

The use of the zinc sulphate spray is not expensive, Doctor Rauch said, amounting to only a third of a cent per child. "It could easily be handled by any civic health authority without financial drain," he pointed out.

"The main essential is some sort of pressure equipment. All hospitals have such electric pressure machines, and they are not expensive to install." The pressure machine is needed, Doctor Rauch said, to enable the spray to reach an effective depth in the nasal passages.

"There is a point between the nose and the brain cavity," he explained, "which is merely a thin plate of bone—the cribriform plate—with numerous perforations. As far as medical knowledge can substantiate, it is the only point at which viruses such as meningitis and paralysis enter the brain. As far as experimental work has shown, it is through the nasal passages that the paralysis virus enters. It lodges on the mucous membrane of the nose and thus enters the blood stream.

"The only scientifically conducted experiments with the nasal spray yet made—those with monkeys—resulted in producing immunity for about 80 to 90 per cent of those treated, while 100 per cent of the other group—untreated—got the disease.

"Naturally, we do not hope for such a high percentage of immunization in children treated. But no matter what the percentage of cases successfully treated—we expect it to be between 25 and 50 per cent—it would still be more than worth while."

Reaction of the nasal spray treatment, Doctor Hauch said, was sometimes swelling of the nasal membranes, headaches, and occasionally stomach sickness. "But this just lasts for a day or, at the most, two, and then passes off. The reaction is not nearly as bad as that of the picric acid in an alum combination which they used to use, and which was more astringent."

Value of the spray lasts only a comparatively short time, according to Dr. Charles F. Bolduan, public health education director for New York City. "But the treatment," he said, "is comparatively simple, if done by a competent man. It's by all means worth trying so long as it's done right. Doctor Peet's spray and method is by all odds the most hopeful thing we know of so far."

Action of the spray is "simply a mechanical blocking of the olfactory nerve through which the virus gets up into the brain," Doctor Bolduan said. "It just prevents the nerve from letting the virus through."

Ontario's children and parents have responded to the offer of the free spray treatment by hospitals and clinics to such an extent that Toronto's city hospitals have speeded up clinics to take care of one thousand a day, it was announced.

Radium Supply.—America's richest hospitals—those of the Eastern seaboard states—need for the treatment of cancer sufferers nearly double their present supply of radium, according to preliminary findings of a survey conducted for Eldorado Gold Mines, Ltd., and announced recently in New York by Dr. Marcel Pochon, French scientist who directs Eldorado's refining and laboratory processes at Port Hope, Ontario, Canada. Doctor Pochon is a former student of Pierre Curie, discoverer of radium.

Now owning a total of 51,895 milligrams of radium, these Eastern hospitals revealed the need of an additional 47,470 milligrams—about 1.7 ounces, or a little over one-tenth of a pound—which, at present prices, would require an expenditure of $1,187,500. (A survey of hospitals througout the rest of the country, which, Doctor Pochon anticipates, will reveal an even greater need, is now under way.)

Results of this preliminary survey, following the ascertainment of rich reserves at the six-year-old Eldorado mine in the Canadian Arctic (only important producer of radium in the Western Hemisphere today—and one of the two in the world), have decided the Canadian radium company on the addition of a new and enlarged refinery, Doctor Pochon announced. This new refinery, to be in operation by the end of the year, will have a production capacity about three times greater than the present one. Production at the present plant, which a few months ago completed the manufacture of its first ounce of radium, is now at the rate of 2½ grams a month, or an ounce and a half a year.

The new refinery will make it possible to supply the most pressing radium needs of the United States hospitals, as well as those of the British Empire, which has up to now absorbed almost all of the Canadian output, according to Doctor Pochon.

A significant indication that funds for the purchase of needed radium in this country are likely to be available soon is the response in Congress to the bill proposing establishment of a national center for cancer research, prevention and control, the French scientist pointed out. The project which, so far, has been most favorably received, would provide for the expenditure of almost $3,000,000 on a cancer institute and hospital, as well as approximately $1,000,000 annually for its activities.

According to latest indications, the proposed cancer control program would not only include provision for radium treatment, but would provide for the purchase of radium to be loaned to state centers. This, Doctor Pochon said, would parallel somewhat the current British program.

Numerous unofficial inquiries from Washington have come to the Canadian radium laboratories within the last three weeks, Doctor Pochon said. "We have been able to tell them that Canada will be producing radium on an ascending scale for an indefinite time to come, and that the new refinery under construction will have resulted in a much larger output by the end of the present year. If there is any way that we can coöperate we naturally will do so."

With the price down to $25,000 a gram (from a one-time high of about $125,000), radium, according to Doctor Pochon, now compares favorably in cost with x-ray, the only other therapeutic method of treating cancer. Radium, he pointed out, has a life of 1,600 years, and requires no expensive apparatus in use, and no maintenance or replacement expenses.

The source of radium is the series of rich but still incompletely explored veins of pitchblende in the Eldorado mines at Radium City, on the eastern shore of Great Bear Lake, in the Canadian northwest territories, just south of the Arctic Circle, and about five hundred miles east of Alaska. Pitchblende is essentially a mixture of uranium compounds, of which about 50 per cent is uranium, a rare metallic element used as the base for brilliant yellow, orange and black pigments in the ceramics industry. Uranium, being an unstable element, with an oversized atom, breaks down at measurable geological speeds progressively into a long series of different elements, among which are radium and polonium.

While efficient production methods have introduced minor economies into the refining of radium, according to Doctor Pochon, it is primarily the richness of the Eldorado ore, discovered in 1929, which has made possible the reduction in price from about $75,000 a gram (the price then), to $25,000 (the current figure). The principal limiting cost factor is the vast amount of ore which must be mined and refined to produce a gram of radium—1,000,000 pounds of the Canadian ore (believed to be the world's richest) yield one gram of radium in final form.

The total amount of mined radium in the world (produced since its discovery by Pierre Curie in 1898), while not accurately catalogued, is generally estimated to be less than one and one-half pounds, or not quite 600 milligrams, not enough to make up a two-inch cube. Its value, at current prices, is about $15,000,000. Of about 225 grams believed to exist in the United States, one of the most comprehensive censuses reveals less than one hundred. Of about thirty grams in New York City, valued at $750,000, nine and one-half are held by Bellevue Hospital, and eight and nine-tenths by Memorial Hospital.